

**LISTING OF CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A process for coating a substrate ~~(1)~~ with ~~at least one~~ a functional layer ~~(2)~~, comprising the steps of:

a) ~~providing the substrate (1) and the~~ a layer starting material in a vacuum system ~~(5)~~, and;

b) ~~coating the substrate (1) with a functional layer (2) by sputtering of the layer starting material on the substrate to define a first portion of the functional layer, wherein;~~

b1) ~~the sputtering of the layer starting material for coating of the substrate (1) with a functional layer (2) is interrupted~~ interrupting the sputtering at least once to produce an intermediate layer ~~(4)~~ on the first portion, the intermediate layer being which is different than the functional layer and ~~has~~ having a thickness of ~~[[≤]]~~ less than or equal to 20 nm; and

b2) ~~the continuing sputtering of the layer starting material is continued after the interruption~~ the intermediate layer is produced to define a second portion of the functional layer, wherein the intermediate layer is sufficient to increase the transmittance and/or reflectance of the functional layer.

2. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in claim 1, wherein the ~~coating of the substrate (1) by means of a functional layer (2) is realized by means of sputtering~~ comprises magnetron sputtering of the layer starting material.

3. (Cancelled)

4. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in ~~one of the preceding claims, wherein~~ claim 1, further comprising repeating the sputtering, interrupting, and continuing steps so that a plurality of functional layers (2) are applied, in particular as an alternating layer system made up of comprising a first functional layers (2) with a low refractive index and a second functional layers (2) with a high refractive index.

5. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in claim 4, wherein the first functional layers (2) with a low refractive index are interrupted by sputtering has a first intermediate layers (4) with a high refractive index and/or the second functional layers (2) with a high refractive index are interrupted by sputtering has a second intermediate layers (4) with a low refractive index, the intermediate layers remaining below a thickness at which they become optically active, preferably  $\leq 10$  nm.

6. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in claim 5, wherein the first functional layers (2) with a low refractive index and the second intermediate layers (4) with a low refractive index consist of  $\text{SiO}_2$  by virtue of silicon being sputtered in a reactive atmosphere, and the second functional layers (2) with a high refractive index and the first intermediate layers (4) with a high refractive index consist of  $\text{ZrO}_2$  by virtue of zirconium being sputtered in a reactive atmosphere.

7. (Currently amended) The process for coating a

substrate ~~(1)~~ as claimed in ~~one of claims 1 to 3~~ claim 1, wherein the layer starting material comprises a pure metal target layer is applied as functional layer (2) by sputtering a metal.

8. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in claim 7, wherein the ~~interruption to the sputtering of the functional layer (2) is effected by~~ interrupting step comprises introducing an oxygen-rich microwave plasma into the vacuum chamber, ~~with an intermediate layer (4) consisting of metal oxide by virtue of the~~ so that a surface of the first portion of the functional layer (2) of metal which has previously been grown being is oxidized.

9. (Currently amended) The process for coating a substrate ~~(1) with a functional layer (2)~~ as claimed in claim 8, wherein the ~~functional layer (2) is applied by sputtering~~ pure metal target comprises chromium.

10. (Currently amended) The process for coating a substrate ~~(1)~~ as claimed in ~~one of the preceding claims,~~ wherein ~~the~~ claim 1, further comprising locating a plurality of substrates (1), on a drum (7) located inside the vacuum chamber[[,]] and rotating the drum so that the plurality of substrates rotate past a plurality of targets (10, 11, 12) comprising the layer starting material and an oxygen source (8).

11. (Currently amended) A coated substrate ~~(1) having~~  
comprising:

at least one functional layer ~~(2) formed from~~ of a metal,  
~~wherein the functional layer (2) has; and~~

at least one intermediate layer ~~(4)~~ of a metal oxide which  
interrupts ~~it and is~~ ≤ the at least one functional layer and has  
a thickness that is less than or equal to 10 nm thick.

12. (Currently amended) The coated substrate ~~(1)~~ as  
claimed in claim 11, wherein the at least one functional layer  
~~(2)~~ is a chromium layer.

13. (Currently amended) The coated substrate ~~(1)~~ as  
claimed in ~~one of claims 11 and~~ claim 12, wherein the  
~~interrupting at least one intermediate layer (4) of a metal~~  
~~oxide is a~~ at least one chromium oxide layer.

14. (Cancelled)

15. (Currently amended) The coated substrate as claimed in  
~~one of claims 11 to 14, which~~ claim 11, wherein the coated  
substrate is used as a substrate for lithographic processes.

16. (Currently amended) A coated substrate ~~(1) having~~  
comprising:

at least one functional layer ~~(2)~~ of a metal oxide, ~~wherein~~  
~~the functional layer (2) has; and~~

at least one intermediate layer ~~(4)~~ of a metal oxide which  
interrupts ~~it~~ the at least one functional layer and remains  
below a thickness at which ~~it~~ the at least one intermediate  
layer is optically active.

17. (Currently amended) The coated substrate ~~(1)~~ as claimed in claim 16, ~~which~~ wherein the at least one functional layer comprises an alternating layer system made up of a first functional layers with a high refractive index and a second functional layers with a low refractive index.

18. (Currently amended) The coated substrate ~~(1)~~ as claimed in claim 17, wherein the second functional layer (2) ~~with a low refractive index consists of~~ is formed from  $\text{SiO}_2$  and the first functional layer (2) ~~with a high refractive index consists of~~ is formed from  $\text{ZrO}_2$ .

19. (Currently amended) The coated substrate ~~(1)~~ as claimed in claim 18, wherein the ~~interrupting at least one intermediate layer (4) of a metal oxide~~ in a the first functional layer (2) ~~with a high refractive index formed from  $\text{ZrO}_2$  is an intermediate layer (4) with~~ has a low refractive index formed from  $\text{SiO}_2$ , and the at least one interrupting intermediate layer ~~(4) of a metal oxide~~ in a the second functional layer (2) ~~with a low refractive index formed from  $\text{SiO}_2$  is an intermediate layer (4) with~~ has a high refractive index formed from  $\text{ZrO}_2$ .

20. (Cancelled)

21. (Currently amended) The coated substrate as claimed in ~~one of claims 16 to 20, which~~ claim 16, wherein the coated substrate is used as an optical element.

22. (Currently amended) The coated substrate as claimed in claim 21, ~~which is used as~~ wherein the optical element is a color filter.

23. (Currently amended) The coated substrate as claimed in ~~one of claims 11 to 22~~ claim 16, wherein the at least one functional layer is an optical functional layer.

24. (New) The process for coating a substrate as claimed in claim 5, wherein the first and second intermediate layers have a thickness of less than or equal to 10 nm.